Essay on Menstruation.

By Richard C Mason
of Virginia
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On Menstruation.

All women in the enjoyment of good health are subject to a periodical discharge from the Uterus, of a fluid resembling blood, which begins at the age of puberty and con=tinues until the approach of old age, recurring once in every lunar Month or twenty eight days except when interrupted by pregnancy or lac=tation; and which from the period of its return is called the menses.

The period at which this discharge first makes its appearance, is so much influenced by

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by climate and constitution, as well as by the mode of life and other adventitious circum=
=stances, that there is almost an endless variety in the time of its first accession in different climates and different individuals.- The early appearance of the menses is always in proportion to the warmth of the climate; and hence in Greece and other hot countries women are said to menstruate so early as the age of eight or nine years, while in the colder and more northern climates menstruation does not take place sooner than the eighteenth or twentieth year. And in Lapland it is even said only to occur in the summer season.-

In the United States however and other climates of a moderate temperature, the menses begin to flow about the twelfth or fourteenth year, sooner or later according to the individual constitution, the habits mode of life &c.-

The time however at which they do appear, whether it be at an earlier or a more

* See Denman's Introduction to the practice of mid-
-wifery - page 78 -

advanced age is always to be considered the period of puberty. At this time, women having arrived at maturity, Dr. Denman very well remarks "that many changes are observed to take place in their constitution and appearance; "their complexion is improved, their countenance is more expressive and animated, their attitudes graceful and their conversation more intelligent and agreeable; the tone of their voice becomes more harmonious, their whole frame but particularly their breasts are expanded and enlarged, and their minds are no longer engaged in Childish pursuits and amusements"*.

At the same time, the Uterus destined to perform a most impotant part in the female economy towards the procreation of the species, participates in the general revolution; having acquired its full form and activity it takes on that peculiar action that is necessary to prepare and preserve it in a state fit for the discharge of the important offices assigned to it. This action im-

-perfectly performed at first, is generally attended by a train of symptoms denoting general febrile action, with pain in the back, loins & head, together with flatulency and other hysteric affections of the stomach and bowels; which are relieved by the Catamenial discharge that now takes place for the first time; which flows in small quantity and is but imperfectly formed, appearing for the most part colourless, resembling mucus, or but slightly tinged with red. Nor does its appearance denote a perfect action in the Uterus, until several periods; when the discharge assumes a dark brown colour; and the act of menstruation is henceforth unattended by any indisposition, generally except a slight pain in the back with some degree of langour.

The same general causes which have been said to operate in influencing the first appearance of the menses, operate so powerfully in regulating the quantity discharged, as well

* See Dunnam's introduction to the practice of midwifery. page 78. —

as the time required for the completion of each period, that we find the quantity varying in climates of extreme degrees of heat and cold, from eighteen to two ounces; and the periods lasting from only a few hours to ten days or longer; and in our own climate where the temperature is at a medium between the two extremes, there exists a great variety ~~both~~ with respect to the quantity discharged and the time it lasts, not only in different constitutions but in the same women at different periods, according to circumstances — But as a general rule it may be remarked that women under equal circumstances in this country discharge from four to six or eight ounces during each period which commonly continues from four to six days —

As women advance in years, and the vigour of their constitutions begin to decline, and they are no longer capable of bearing children, the catamenial discharge, no

longer useful, ceases to flow - and the period of its cessation is always regulated by the period of its original commencement - for in the warmer climates where women arrive to ma= =turity at the early age of eight or nine, they necessarily begin to decline at an early period and therefore cease to menstruate before the age of forty; while in those countries where women do not menstruate sooner than the eighteenth or twentieth year, the menses continue until the age of fifty or even la= =ter - But in the United States, ~~the same~~ medi= =um that prevails between the extremes in the beginning of the menses, is also observed in their cessation, which takes place generally about the fortieth or forty fifth year -

As the menses have always ~~been~~ considered peculiar to the human species and confined to the female sex, no discharge analagous to it existing in men, it became

a subject of interesting enquiry at a very early period, to account for this singular discharge, which, was observed to ~~be~~ so intimately connected with the general health of women, as to have induced the belief that all the diseases to which they ~~were~~ subject ~~was~~ were to be traced to some irregularity or interruption in its evacuation; and this enquiry has been prosecuted with great zeal, in all ages down to the present ~~time~~.

And with a view to this investigation the first question that presented itself was to determine the precise source from which it flowed; and on this subject a contrariety of opinion has been entertained: some have believed it to proceed from the Cavity of the Uterus itself, while others have maintained that it came only from the vessels of the Vagina; and many arguments and observations have been alledged in support of each opinion; but as the proofs in support of the former

are so evident as to put the question beyond doubt at this day, it would seem unnecessary to say any thing on the subject here, as the very fact itself of the suppression of the menses during pregnancy is all sufficient to prove the Uterus to be the true source. To this however it may be objected, that the menses do sometimes con= =tinue to flow even during the state of preg= =nancy, and therefore must proceed from the Vagina; but this objection does not at all inval= =idate the general position, for in the very few instances in which such an evacuation does take place, it is to be considered entirely accidental; and by no means of the same nature as the menstrual discharge, which is now clearly ascertained to be the fact.

If however additional proof were necessary to establish the fact, the observations of Vesalius, Peyer, Mauriceau, Littre and Schurig, afford us ample testimony; for they all, according

* See treatise by Dr. J. Astruc on the diseases of women, Lond. Edit. 1st Vol. page 14th

to Dr. Astruc*, declare they "have seen the men=
=ses flow from the orifice of the Uterus in
Women, who afforded an opportunity of
ascertaining the fact, because they had a
descensus of the whole body of the Uterus,
even to the extremity of the Vulva"; to which
the two last add, that not a drop of blood
flowed from the Vagina, of which they could
see the whole circumference". In addition
to which, as we are informed by the same author,
Morgagni has found "in all the observations
he has made on women, who died during
~~the time of~~ their menses, or a few days af=
=ter having had them, that the fundus
of the Uterus was marked with a great
number of bloody spots, but that there
appeared nothing like it in the Vagina".
Since, then, the fact has been proven to demon=
=stration, that the menses do proceed from
the cavity of the Uterus; it has been deemed of

* Dr James' Lectures —

sufficient importance by some, to extend the investigation with a view to determine whether they were discharged from the orifices of veins or arteries; and here too a difference of opinion has prevailed; Dr. Astruc is among the number who believed them discharged from veins and founds his opinion on their colour; which he says "is brown ~~and~~ often black, such as is that of the veins"; "the slowness too," he says, with which it flows drop by drop, is agreeable to the manner of that which comes from the veins". In opposition to this Dr. Wm. Hunter has ~~such~~ declared that he has seen the menses proceed from the curling extremities of the arteries in a uterus that was prolapsed*. But as we are to consider the menses a secretion, and as the ultimate arrangement of the vessels of secretory organs is but imperfectly understood even at the present day, the question must remain in some doubt, until a more minute acquaintance

with anatomy will enable us to determine the point. And at present I will only venture to suggest that it is neither from arteries or veins, but from an appropriate set of excretory vessels that the menses are poured forth.

With respect to the causes of the men=
=strual flux, a multitude of opinions have been entertained, and accordingly we find in differ=
=ent ages it has been ascribed to the influence of the Moon, to a ferment in the blood, to a pletho=
=ra, either general or local, and lastly to a secreto=
=ry action of the Uterus.

The doctrine of lunar influence had its origin in the remotest ages, when the clouds of superstition and ignorance enveloped the human understanding, and obscured the way to investigation and research; and when a chimerical analogy was supposed to subsist between the tides of the ocean, and the fluids of the human body. And as the ebbing and

flowing of the tides were supposed to be regulat=
=ed by the phases of the moon, the fathers of this
doctrine made little hesitation in ascribing
the flow of the menses to the same cause.
As however this doctrine must necessarily im
=ply that all women under the influence of
this general cause, should menstruate at the
same time, and as this was observed not to be
the case, but that they menstruated in all
stages and periods of the moon without regard
to its changes; and farther, that this cause univer
=sal in its operation, should likewise have had
some similar effect on men, which was also
observed not to be the fact.— the idea was soon
abandoned as inadequate to the explanation
of the fact, and now maintains an equal stand
=ing with the ancient custom of curing fractures,
or the intermittent fever, by committing to
memory and repeating a parcel of long words
no less remarkable for the difficulty of their

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pronunciation than their want of meaning.

The doctrine of a ferment, originated with that class of men now well known by the appellation of the Humoral pathologists, who attributed all the diseases of the human body to some derangement or morbid condition of the fluids, which they believed to be subject to chemical changes. They supposed that by the presence of some acrimonious matter, a violent chemical effervescence or ferment was excited in the mass of blood, by which the uterine vessels were excited, and by a salutary effort, they discharged the noxious matter from their mouths, and thus preserved the System from its baneful influence. The futility, however, of this doctrine is rendered sufficiently obvious by the light that has been thrown on the animal economy by the present improved state of physiological science, by which it is made evident that no such chemical

*See his note to Richerand - page 279 -

action or ferment can take place in the blood of the living body. Founded therefore on false principles, this doctrine soon gave way to that which maintained the menses to be the consequence of a plethora, which was advocated by the highest authority, was universally received and prevailed for a long time without opposition, until the Theory of secretion was suggested; and where this had its origin it is difficult to ascertain. Professor Chapman says "it has been very generally ascribed to the Celebrated Mr. Hunter; but, he continues, the evidence of his claims to it is exceedingly slender. The only trace of it, which we can discover in his writings, is a vague expression in a paragraph of his Treatise on the Blood*; where he says "In healthy "menstruation the blood which is discharged "does not coagulate; in the unhealthy or irregular "it does. The healthy menses therefore shew a "peculiar action of the Constitution; and it

* Vol 1st page 24. Phil. Edit—

"is most probably in this action that its salubri-
"ous purposes consist". afterwards however, con-
"tinues our professor, he furnished an extract
from his lectures to be published in Johnson's
Midwifery, in which he says "The blood discharg-
"ed in menstruation is neither similar to
"blood taken from a vein of the same person,
"nor to that extravasated by an accident in any
"other part of the body: but is a species of blood
"changed, seperated, or thrown off from the
"common mass by an action of the vessels of
"the Uterus, in a process similar to secretion,
"by which action the blood having lost its
"living principle does not coagulate".-

Professor James, speaks of Saunders, as having been supposed by some to be the first who considered the Catamenia a secretion; but he remarks that Boder at an earlier date treated of the Uterus as a gland, and of course he supposes considered the menses a secreted

* See vol 6th page 72

fluid. And we find Haller in his notes on the prelectiones Academicæ of Boerhaave, speaking of the source of the menses, using these words, viz, "Sed facile ipsa fabrica partium demonstrat uterum naturale organum esse hujus secretionis"* by which it plainly appears, he at that time considered them a secretion, altho' he has since maintained a very different opinion. Doubtful however as may be the origin of this theory, it is certainly the only one that appears consistent with the general laws of the Animal Economy. And I shall therefore undertake to show, why I believe the menstrual discharge not to depend on a plethora, but rather to be considered the result of a secretory action in the Uterus.

In the first place, if this discharge depended on a plethoric condition of the System and was intended to relieve the body from the weight of superabundant blood,

* See Friend's Emenalogia - 2d Lond. Edit. page 8th. -

we should only expect to see women of this particular habit affected by it — as well as, that men who are more frequently plethoric should have been provided by nature with some outlet equally efficacious in affording relief from the oppression of too great a quantity of blood —

But Dr. Friend, who has been one of the ablest advocates in support of the theory of a plethora, declares that all women are plethoric; and has with much ability and ingenuity attempted to prove it to depend on a deficiency of perspiration, which he says is the case in women, and which he ascribes to "a languid circulation, and consequent debility; to their temperament which he says is moister than men's; and to a life spent at home, and not much inured to labour." * But to this it is to be objected, that women of all temperaments, whether moist or dry, of a lax or rigid fibre, whether inured, as some are, to hard labour and active exer-

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=cise; or accustomed to inactivity and a more luxurious mode of life, are all liable to this discharge; and so nearly alike both with re=
=spect to time and quantity, as at once, to refute the idea of its depending wholly on these acci=
=dental causes.

The vicarious discharges of blood which sometimes take place from the lungs, the nose, and other parts of the body, during a suppression of the menses, have been adduced in support of a plethora; and would, a priori, appear to afford arguments of much weight in its fav=
=our; but upon a closer investigation we shall find that they are explicable on other grounds much more consistent with the general phenomena of the animal economy.--

Such is the sympathy known to exist through=
=out the whole system, and so intimately are the various parts of the body connected by a chain of associated actions, that they seem mutually

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dependant on each other; so much so, that if, by the interruption of the due performance of any one part, a single link in this chain is broken, the whole is thrown into a state of disorder and irregularity; and then some other part, by sympathy takes on such action as tends to the relief of the whole.— Thus if a man by any accidental means, entirely independent of plethora, is affected with the hemorrhoids, they by their gradual approach, become so intimately interwoven with the general operations of the animal machine, that they cannot be suddenly suppressed without exciting some disorder in the constitution, unless it is relieved by a discharge from some other part, which is, under these circumstances generally observed to take place — and now, that this discharge is not referable to a plethoric habit is clear, since the original discharge was not occasioned by such an habit.

If then a part of the body which is not

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characterized for any particular sway over the rest, is thus capable of establishing what was at first a morbid action, afterwards as a salutory one, which becomes so blended with the whole as to throw them all into disorder by its interruption; what may we not expect to be the consequence of the derangement of the natural functions of a part so important as the Uterus; which is known to exert such wide dominion and universal control over the operations of the female economy, that it has even been supposed to be the sole cause of all the distinguishing characteristics of the female sex.

These discharges then are not to be considered as the relief of a plethora by the mere evacuation of blood, but as the effect of that action which the uterus is incapable of exerting, and which by the powers of the system has been translated to the part from which the discharge proceeds.

If the menses were occasioned by a plethora

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and this plethora could be relieved by an evacu=
=tion of blood from any other part of the body,
a quantity of blood equal in amount to the
discharge of each menstrual period, drawn
from the arm at the beginning of a period
should immediately put a stop to the uterine
discharge; but it is well known that several
times the quantity drawn in this way will
have no such effect. And farther, it is
not reasonable to suppose that this plethora, ca=
=pable of rupturing the vessels of the Uterus by over=
=distension should be so universally relieved
by a discharge so gradual as the menses are
known to flow.

Again the friends of this doctrine
say that women are vested with the power of
generating more blood, than is necessary to
their own support, for the purpose of giving
nourishment to the foetus during the state
of pregnancy; and that in an unimpregnat=

-ted state ~~that~~ it is necessary, that this superfluous blood should be thrown off in order to pre-serve their own health. Among the advocates for this opinion stood the illustrious Galen, who, as we are informed by Dr. Friend, says "That the menses are given to women that "they may be evacuated for their health's "sake, and yield nourishment to the embryo "when suppressed by conception". But to this I would only reply, by asking, why this extra quan-tity of blood should be generated at any other time than when it is wanting: and that the system has the power of supplying her exigencies in any particular situation, we have innumerable proofs. We see all the peculiarities in the fetal structure, that are necessary to its existence in utero, immedi-ately at birth accommodating themselves to the change in its existence, by correspond-ent changes. We see the different parts of the

body exerting a wonderful power in supplying the necessities of the case in many accidents; as for instance, in the formation of a new joint in case of a luxation. And, as more immediately in point, we see the Uterus itself in pregnancy, taking on such action as that state necessarily requires; it is gradually enlarged to accommodate the growth of the fœtus; which is not effected by distension in consequence of the increase in the size of the fœtus; for its sides, (which, if this were the fact, should become thinner in proportion to its size,) do in fact increase in thickness; and its vessels are now enlarged for the purpose of supplying a greater quantity of blood, which is at this time required.

And again, if we are allowed to call analogy to our aid, (which if ever admissable will certainly apply in the present case; we see that Brute animals, which have an equal

* See Hallers first lines Edin. Edit. 2d vol. page 194.

necessity for a surplus of blood to nourish their young, in pregnancy, have no discharge of blood in the unimpregnated state ~~— since if they~~ ~~have the power of generating~~ this blood when necessary only, may we not suppose that the human species have the same power —

But Haller has declared that "at the age "of puberty a plethora occurs in both sexes, which "in the male is frequently vented by the nose; "But which in the female finds a more easy "vent downward, directed in part by the weight "of the blood to the vessels of the uterus which are "now much enlarged and easily distensible, "the blood finds an easy passage thro' the soft "exhaling vessels which open into the Cavity of "the Uterus, being there less resisted than in "its return by the veins" —* If however this were the fact, why do we not see this plethora relieved by periodical returns in the Male

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as well as in the female sex? - that a discharge of blood does sometimes occur from the nose of males at the period of puberty is very cer=-tain, but this I consider by no means the consequence of a plethora, but as entirely depending on an accelleration in the cir=-culating system which is occasioned by the sudden changes ~~that~~ take place at this period; for from infancy to puberty there is a gradual increase ~~of~~ size; but immediately after that period, in both sexes, the growth of the body makes a sudden spring, and acquires re=-doubled strength and activity - And as Caban-is remarks, "~~this period~~ produces a general "alteration in the whole character of human "existence. New organs enter on action, new "wants are felt; a new moral state developes "itself. It is then that the infant ceases to be a child, "and that its destination relatively to its species, is "marked by traits which it is impossible to mis=

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"take. Among these characteristic circumstances,
"there are two which appear to be common in
"some degree to both sexes, and which would
"appear to merit a particular attention.

"We know the Sympathetic Connection that
"exists between all the branches of the glandular
"System, & we also know that those parts of the
"organs of generation which we may consider as the
"principal focus of their peculiar sensibility, or
"which appear to impress on the others life and
"motion, are to speak correctly glands. So that from
"the Moment when the evolution of these organs
"commences, a general action in all the Lymphatic
"System takes place. The glands of the groin, those
"of the Breasts, of the axilla and of the neck tum-
"efy, and often become painful.

"The tumefaction of the glandular System
"is connected in its turn with peculiar interior
dispositions and with certain new directions
which the blood begins at the same time to take.

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"It is certain that the resorption of the peculiar hu-
"mours which the genital organs prepare and the di-
"rect influence which they exercise by their lively
"sensibility on all the sanguiferous system, impart
"at that time to the blood more energy and vitali-
"ty. This fluid becomes more ~~of~~ a stimulant to
"the vessels which contain it. Their tone and par-
"ticularly that of the arteries is considerably aug-
"mented. And ultimately the circulation assumes
"a character of activity which it had not before -
"These changes so remarkable in the state & course of the
"fluid from which all the other fluids are formed must
"necessarily produce a general revolution: each of
"these fluids acquires qualities, and above all
"receives impressions analagous; their secretory
"organs and their vessels redouble their action".

Hence at this period many changes are obser-
ved to take place in men, ~~at this period~~; their
voice, which before was shrill and feeble, now
becomes rough and strong; and that distin-

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=guishing characteristic of man, the beard, begins to appear; but as these changes depend on a degree of excitement imparted to the system by the evo=
=lution of the genital organs, they are observed not to take place when these organs are defect=
=ive: hence eunuchs have always a shrill voice and are destitute of beards and other marks of the mature man ∾

At this period too it has been observed that many changes take place in the female sex, the most remarkable of which are the swelling of their mammæ, and the establish=
=ment of the menses, which also depend on a perfect state of the organs of generation, for it is known that women, whose ovaria have been imperfect or wanting, have neither had an enlargement of the breasts nor the men=
=strual evacuation; and here we have a strong proof that this evacuation does not owe its origin to a plethora, but is depend=

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-ant on a particular action of the Uterus excited by an impression made on it by the ovaries; and this appears to me to be made conclusive by the fact, that, where the ovaria have been originally perfect, and the menses have been established; and they have afterwards been destroy=ed by disease or accident, the menses have ceased to flow and never after appeared —

That the menses are a secretion and are intended to prepare and preserve the Uterus in a state fit for Conception I believe to be the fact, from having observed a discharge always to take place from the vagina of several domestic animals; (and from which I infer, it takes place from all animals,) during their season for Copulation, which I cannot but believe is analagous to the menses in women and is intended to give the uterus an aptitude for Conception — And that the Uterus has the power of performing this secretion is evident from

* Haller's first lines - Edin. Edit. vol 2nd page 195 -

its structure, which is highly vascular; and as is the case in other glands, the vessels are so arranged as to favour this process: the arteries are known to be very large in proportion to the veins, and extremely convoluted, with thin coats easily distensible: for as Haller observes "The return of the "blood is therefore more slow both because the "flexures of the arteries from the increased afflux "of the blood become more serpentine and fit "for retarding the blood's motion; and likewise "because it now returns with difficulty through "the veins."* And lastly, this question seems to be placed beyond all farther doubt, since it is ascertained as a fact, that the menses are a fluid sui generis, that they are not blood because they have neither its coagulability nor colour, and are said on chemical analysis to present different results from blood. I therefore conclude that the catamenial discharge is the result of a secretory action of the Uterus by which it is prepared for conception.